

REMARKS

The Office Action dated January 29, 2007 has been received and carefully noted. The above amendments to the drawings and claims, and the following remarks, are submitted as a full and complete response thereto.

The specification is amended. Fig. 2 is amended in the attached replacement sheet. Claims 1-3, 6-8, and 11-14, are amended to more particularly point out and distinctly claim the subject matter of the present invention. Claim 15 is canceled without disclaimer or prejudice. New claims 19-21 are added. Support for the amendments is found at least on page 5 first paragraph. No new matter is added. Claims 1-14 and 19-21 are respectfully submitted for consideration.

The Office Action objected to the disclosure on the grounds that the phrases “virtual connection” and “virtual channel” are not clearly defined. Specifically, the Office Action takes the position that terms are used interchangeably, and improperly, throughout the specification. Applicants submit that the specification is amended to clarify any known discrepancies. Accordingly, withdrawal of the objection to the disclosure is respectfully requested.

The Office Action rejected claims 4, 5, 9, 12, 13 and 17 under 35 U.S.C. 112, first paragraph because the phrase “wherein the multiplexing unit has a switchable bypass line” is not described in the specification or drawings.

Applicants respectfully submit that the present drawing in Fig. 2, and specification at least on page 7, provide a clear and concise written description of the features recited

in the above claims. Accordingly, withdrawal of the rejection under 35 U.S.C. 112 first paragraph is respectfully requested.

The Office Action rejected claims 1-18 under 35 U.S.C. 112, second paragraph, as being indefinite.

Regarding claims 1, 6 and 7 the Office Action requires an explanation of the differences between a “virtual connection” and a “virtual channel”. Applicants submit that as discussed above, Applicants submit that as admitted on page 2 of the Office Action, one skilled in the art of ATM recognizes that a virtual connection may contain several virtual channels. Thus the term “virtual connection” is clearly described in the present specification. Further, Applicants submit that the term “virtual channel” is deleted from the specification.

With regard to claims 3 and 8, the Office Action asserted that there is a lack of antecedent basis for “wherein each channel”. Applicants submit that claims 3 and 8 provide proper antecedent basis for all of the features recited therein.

Regarding claims 5, 13, and 18 the Office Action asserted that the feature of “a multiplexing unit is a plug-in type unit” is not described in the specification and drawings. Applicants submit that the present specification describes a plug-in unit as a hardware or software module that adds a specific feature or service to a larger system. The new component simply plugs in to the existing system. Thus, the features recited in claims 5, 13 and 18 are adequately described in the specification.

Based at least on the above, Applicants submit that claims 1-18 particularly point out and distinctly claim the subject matter of the present invention. Accordingly, withdrawal of the rejection under 35 U.S.C. 112, second paragraph is respectfully requested.

The Office Action rejected claims 1, 6, 7, 15 and 16 under 35 U.S.C. 103(a) as being obvious over admitted prior art, (APA) in view of US Patent No. 6,639,916 to Wakizaka (Wakizaka). The Office Action took the position that APA discloses most of the features of these claims except multiplexing AAL-2 connections of the different termination points into a single asynchronous transfer mode virtual connection. The Office Action asserted that Wakizaka disclosed this feature. Applicants respectfully submit that the cited references fail to disclose or suggest all of the features recited in any of the pending claims. The rejection of claim 15 is moot in light of the cancellation of this claim.

Claim 1, from which claims 2-5, and 8-10 depend, is directed to a telecommunication network using wideband-code division multiple access protocol. A plurality of base stations communicates with a radio network controller by an asynchronous transfer mode based data connection via an I_{UB} interface. At least one of the plurality of base stations includes a plurality of radio sectors having physically distributed asynchronous transfer mode adaptation layer 2 (AAL-2) based termination points. Each termination point has an AAL-2 over asynchronous transfer mode structure where different call ID's are mapped into an AAL-2 cell stream of a single asynchronous transfer mode virtual

connections under control of a control unit timer having a determined delay time. An asynchronous transfer mode switching unit receives all AAL-2 cell streams being sent parallel to each other from said termination points. The asynchronous transfer mode switching unit includes a multiplexing unit configured to multiplex all of said received AAL-2 cell streams into a single asynchronous transfer mode virtual connection to be processed by an asynchronous transfer mode switch.

Claim 6, from which claim 13 depends is directed to a multiplexing unit for a telecommunication network that uses wideband-code division multiple access, and comprises a plurality of base stations communicating with a radio network controller by an asynchronous transfer mode based data connection via an I_{UB} interface. At least one of the plurality of base stations includes a plurality of radio sectors having physically distributed asynchronous transfer mode adaptation layer 2 (AAL-2) based termination points. Each of the termination points has an AAL-2 over asynchronous transfer mode structure where different call ID's are mapped into an AAL-2 cell stream of a single asynchronous transfer mode virtual connection under the control of a control unit timer having a determined delay time. The multiplexing unit is configured to receive all AAL-2 cell streams being sent parallel to each other from said termination points. The multiplexing unit is configured to multiplex all of the received AAL-2 cell stream into a single asynchronous transfer mode virtual connection to be processed by an asynchronous transfer mode switch.

Claim 7, from which claims 14 and 16-18 depend, is directed to a method for data processing in a telecommunication network that uses wideband-code division multiple

access. The network includes a plurality of base stations communicating with a radio network controller by an asynchronous transfer mode based data connection via an I_{UB} interface, wherein at least one of the plurality of base stations comprises a plurality of radio sectors having physically distributed asynchronous transfer mode adaptation layer 2 (AAL-2) based termination points. Each of the termination points has an AAL-2 over asynchronous transfer mode structure where different call ID's are mapped into an AAL-2 cell stream of a single asynchronous transfer mode virtual connection under the control of a control unit timer having a determined delay time. All AAL-2 cell streams being sent parallel to each other from said termination points are received. All of the received AAL-2 cell streams into a single asynchronous transfer mode virtual connection to be processed by an asynchronous transfer mode switch are multiplexed.

According to certain embodiments, the present invention is directed to a telecommunication network using the WCDMA protocol comprising a plurality of base stations communicating with a central Radio Network Controller by an ATM based data connection via an IUB interface, wherein at least one of the base stations is comprising a plurality of radio sectors with physically distributed AAL-2 based termination points, each termination point having an AAL-2 over ATM structure where different call ID's are mapped into respective ATM virtual connections under the control of a control unit timer with a given delay time. All AAL-2 cell streams are sent parallel to each other to an ATM switching unit. The ATM switching unit comprises a multiplexing unit for multiplexing

AAL-2 connections of different termination points into a single ATM virtual connection to be processed by an ATM switch.

Wakizaka is directed to an AAL receiving circuit which includes an AAL identifying unit which identifies an AAL type of the ATM cell based on a value of a VCI included in the ATM cell. A standard cell interchanging unit receives the ATM cell and transfers the ATM cell with no change when the ATM cell is determined as a standard cell at the AAL identifying unit. An AAL2 assembling unit receives the ATM cell, divides the ATM cell for each short cell, appends a header of the ATM cell to each of the divided ATM cells, converts them in a form of the standard cell, and transfers them as an ATM cell, when the ATM cell is determined as an AAL2 cell. A cell multiplexer multiplexes the ATM cells which are transferred from the standard cell interchanging unit and the AAL2 assembling unit, and transfers them to a common ATM bus, and at least one AAL terminating unit which determines the AAL type of the ATM cell which is transferred from the common ATM bus and processes the ATM cell according to the determined AAL type.

Applicants respectfully submit that the cited references fail to disclose or suggest at least the feature of a multiplexing unit configured to multiplex AAL-2 cell streams, which are sent in parallel from said termination points and received at said ATM switching unit, into a single ATM virtual connection, as recited in claims 1, 6 and 7. The Office Action relied on Wakizaka to disclose this feature. However, Wakizaka merely discloses the processing of ATM/AAL-2 cells that are bound for the terminating units

(see for example, the direction of the arrows linking the functional units of Fig. 8 of Wakizaka). This processing of Wakizaka aims at producing ATM cells that only contain one AAL-2 cell bound for a specific terminating unit, and thus does not disclose or suggest multiplexing unit according to the amended independent claims, which aims at combining AAL-2 cells of different termination points (and CID's) into a single ATM virtual connection.

Applicants submit that because claim 16 depends from claim 7, claim 16 is allowable at least for the same reasons as claim 7, as well as for the additional features recited in dependent claim 16.

Based at least on the above, Applicants respectfully submit that the cited references fail to disclose or suggest all of the features of claims 1, 6, 7, and 16. Accordingly, withdrawal of the rejection under 35 U.S.C. 103(a) is respectfully requested.

The Office Action rejected claims 2, 11, and 14 are rejected under 35 U.S.C. 103(a) as being obvious over APA and Wakizaka, in view of US Patent No. 6,414,970 to Negishi et al. (Negishi). The Office Action took the position that APA and Wakizaka disclosed most of the features of these claims except, AAL-2 streams coming from individual radio sectors and a multiplexed stream have independent control unit timers. The Office Action asserted that Negishi disclosed this feature. Applicants submit that the cited references taken individually or in combination, fail to disclose or suggest all of the features of any of the pending claims.

The deficiencies of APA and Wakizaka are discussed above. Negishi is directed to digital signal multiplexing in which plural degree-one multiplexed streams produced. The Office Action alleged that Negishi discloses independent system clock/timers for each of the input degree one stream and for the degree two multiplexer. However, Applicants submit that Negishi fails to cure the deficiencies of APA and Wakizaka because Negishi fails to disclose or suggest a multiplexing unit configured to multiplex AAL-2 cell streams, which are sent in parallel from said termination points and received at said ATM switching unit, into a single ATM virtual connection.

Further, Applicants submit that Negishi fails to cure the admitted deficiencies of APA and Wakizaka because Negishi fails to disclose or suggest said AAL-2 cell streams coming from individual radio sectors and said single asynchronous transfer mode virtual connection into which said AAL-2 cell streams received from said termination points are multiplexed, and have independent control unit timers, as recited in claim 2 and similarly recited in claims 11 and 14. Negishi merely describes a degree-two multiplexer that includes a time information correction unit 6 for correcting the PCR of the degree-two multiplexed stream generated by the switching unit 5 and clock generator 7 for generating system clocks for the degree-two multiplexer. See col. 10 lines 60-64.

Based at least on the above, Applicants submit that the cited references fail to disclose or suggest all of the features of claims 2, 11 and 14. Accordingly, withdrawal of the rejection under 35 U.S.C. 103(a) is respectfully requested.

The Office Action rejected claims 3 and 8 under 35 U.S.C. 103(a) as being obvious over APA and Wakizaka, in further view of US Patent No. 6,810,030 to Kou (Kuo). The Office Action took the position that APA and Wakizaka disclosed most of the features of these claims except each channel of the plurality of radio sectors has a different bandwidth. The Office Action asserted that Kou disclosed this feature. Applicants respectfully submit that the cited references taken individually or in combination, fail to disclose or suggest all of the features of any of the pending claims.

The deficiencies of APA and Wakizaka are discussed above. Kuo is directed to allocating utilization of multiple carriers in a wideband CDMA transmission system by determining the carrier utilization interference levels for each of the multiple carriers. However, Kuo fails to cure the deficiencies discussed above regarding claims 1 and 7 because Kuo fails to disclose or suggest a multiplexing unit configured to multiplex AAL-2 cell streams, which are sent in parallel from said termination points and received at said ATM switching unit, into a single ATM virtual connection.

Based at least on the above, Applicants submit that the cited references fail to disclose or suggest all of the features of claims 3 and 8. Accordingly, withdrawal of the rejection under 35 U.S.C. 103(a) is respectfully requested.

As stated above, new claims 19-21 are added. Applicants respectfully submit that claims 19-21 recite features that are neither disclosed nor suggested in any of the cited references.

Applicants respectfully submit that each of claims 1-14 and 19-21 recite features that are neither disclosed nor suggested in any of the cited references. Accordingly, it is respectfully requested that each of claims 1-14 and 19-21 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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Enclosure: Replacement Drawing (1 sheet – Fig. 3)